AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended)   In a computing system that has access to a set of control points, the set of control points for generating an outline of a graphical object, the outline being utilized to determine how the graphical object is rendered, the position of some portions of the outline potentially being constrained to pre-determined locations, a method for using a font-hinting language to represent an iterative solution to a constraint, the method comprising:

identifying features of the graphical object represented by a set of control points expressly representing strokes to identify a more complex constraint that cannot be natively expressed based on the vocabulary of the font hinting language;

accessing the more complex constraint that cannot be natively expressed based on the vocabulary of the font-hinting language, the more complex constraint constraining at least a portion of the outline;

decomposing the more complex constraint into a plurality of simpler constraints that can be natively expressed based on the vocabulary of the font-hinting language, wherein decomposing the more complex constraint into a plurality of simpler constraints comprises decomposing a circularly dependent constraint at least into:

a first constraint that constrains the position of a first control point, compliance with the first constraint depending on the position of a second control point; and

a second constraint that constrains the position of the second control point, compliance with the second constraint depending on the position of the first control point; and

representing each of the simpler constraints in corresponding font-hinting language instructions that are iteratively processed to at least approximate a solution to the more complex constraint; and

_____ storing the simpler constraints in one or more physical computer readable storage media that are subsequently used for displaying the graphical object according to the simpler constraints.

2. (Original)   The method as recited in claim 1, wherein accessing a more complex constraint that can not be natively expressed based on the vocabulary of the font-hinting language comprises accessing a constraint that is based on a power or exponential function.

3. (Original)   The method as recited in claim 1, wherein accessing a more complex constraint that can not be natively expressed based on the vocabulary of the font-hinting language comprises accessing a constraint that requires a plurality of control points to be moved simultaneously.

4. (Original)   The method as recited in claim 1, wherein accessing a more complex constraint that can not be natively expressed based on the vocabulary of the font-hinting language comprises accessing circularly dependent constraints.

5. (Previously Presented) The method as recited in claim 1, further comprising identifying features of the graphical object represented by a set of control points expressly representing serifs to identify a more complex constraint that cannot be natively expressed based on the vocabulary of the font hinting language.

6. (Original)   The method as recited in claim 1, wherein decomposing the more complex constraint into a plurality of simpler constraints comprises decomposing a constraint based on a power or exponential function into a plurality of portions of a power series.

7. (Original) The method as recited in claim 1, wherein decomposing the more complex constraint into a plurality of simpler constraints comprises decomposing a constraint that requires a plurality of control points to be moved simultaneously into a plurality of constraints, each constraint for moving an individual control point.

8. (Cancelled)

9. (Original) The method as recited in claim 1, wherein representing each of the simpler constraints in corresponding font-hinting language instructions that can be iteratively processed to at least approximate a solution to the more complex constraint comprises representing each of the simpler constraints in TrueType® instructions.

10. (Original) The method as recited in claim 1, further comprising:

iteratively processing the font-hinting language instructions a finite number of times to at least approximate a solution to the more complex constraint such that the at least a portion of the outline can be altered to comply with more complex constraint;

generating an outline of the graphical object that conforms, at least within a specified tolerance, with the more complex constraint; and

generating a pixelated representation of the graphical object based on the outline, the pixelated representation for rendering at an output device.

11. (Currently Amended) In a computing system that is configured to process font-hinting language instructions, a computerized method for iteratively solving constraints such that a graphical object can be appropriately rendered, the method comprising:

receiving font-hinting language instructions representing a plurality of simpler constraints, the plurality of simpler constraints corresponding to a more complex constraint that can not be natively expressed based on the vocabulary of the font-hinting language; ~~and~~

iteratively processing the font-hinting language instructions a finite number of times to at least approximate a solution to the more complex constraint such that the graphical object can be altered to comply with the more complex constraint, wherein iteratively processing the font-hinting language instructions a finite number of times to at least approximate a solution to the more complex constraint comprises:

applying a first simpler constraint, based on the current position of a first control point, to calculate a target position for a second control point;

applying a second simpler second constraint, based on the current position of the second control point, to calculate a target position for the first control point;

determining that the target position for the first control point is within a specified tolerance of the current position for the first control point; and

determining that the target position for the second control point is within the specified tolerance of the current position for the second control point; and

<u>displaying the graphical object according to the first and second control points</u>.

12. (Original)   The method as recited in claim 11, wherein iteratively processing the font-hinting language instructions a finite number of times to at least approximate a solution to the more complex constraint comprises iteratively processing font-hinting language instructions representing portions of a power series.

13. (Original)   The method as recited in claim 11, wherein iteratively processing the font-hinting language instructions a finite number of times to at least approximate a solution to the more complex constraint comprises iteratively processing font-hinting language instructions that move individual control points.

14. (Cancelled)

15. (Previously Presented)   The method as recited claim 11, further comprising:

    making the target position for the first control point the current position for the first control point; and

    making the target position for the second control point the current position for the second control point.

16. (Original) The method as recited in claim 11, wherein iteratively processing the font-hinting language instructions a finite number of times to at least approximate a solution to the more complex constraint comprises iteratively processing font-hinting language instructions until a specified number of iterations is performed.

17. (Original) The method as recited in claim 11, wherein iteratively processing the font-hinting language instructions a finite number of times to at least approximate a solution to the more complex constraint comprises iteratively processing font-hinting language instructions until control point locations are within a threshold tolerance of complying with a more complex constraint.

18. (Original)   The method as recited in claim 11, wherein iteratively processing the font-hinting language instructions a finite number of times to at least approximate a solution to the more complex constraint comprises iteratively processing TrueType® instructions.

19. (Original)   The method recited in claim 11, further comprising:

generating an outline of the graphical object that conforms with the more complex constraint; and

generating a pixelated representation of the graphical object based on the outline, the pixelated representation for rendering at an output device.

20. (Currently Amended) A computer program product for use in a computing system that has access to a set of control points, the set of control points for generating an outline of a graphical object, the outline being utilized to determine how the graphical object is rendered, the position of some portions of the outline potentially being constrained to pre-determined locations, the computer program product for implementing a method for using a font-hinting language to represent an iterative solution to a constraint, the computer program product comprising computer-executable instructions <u>on a physical computer readable storage medium</u> that, when executed by a processor, cause the computing system to perform the following:

identify features of the graphical object represented by a set of control points expressly representing strokes to identify a more complex constraint that cannot be natively expressed based on the vocabulary of the font hinting language;

access the more complex constraint that cannot be natively expressed based on the vocabulary of the font-hinting language, the more complex constraint constraining at least a portion of the outline;

decompose the more complex constraint into a plurality of simpler constraints that can be natively expressed based on the vocabulary of the font-hinting language<u>, wherein decomposing the more complex constraint into a plurality of simpler constraints comprises decomposing a circularly dependent constraint at least into:</u>

<u>a first constraint that constrains the position of a first control point, compliance with the first constraint depending on the position of a second control point; and</u>

<u>a second constraint that constrains the position of the second control point, compliance with the second constraint depending on the position of the first control point</u>; and

represent each of the simpler constraints in corresponding font-hinting language instructions that are iteratively processed to at least approximate a solution to the more complex constraint.